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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/965,242	09/26/2001	Sreen A. Raghavan	M-11923-1P US	3308
22852	7590	06/28/2005	EXAMINER	
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			WILLIAMS, LAWRENCE B	
			ART UNIT	PAPER NUMBER
			2638	

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/965,242

Applicant(s)

RAGHAVAN ET AL.

Examiner

Lawrence B. Williams

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on amendment filed on 17 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 7-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-9, 15, 38, 39 and 45 is/are rejected.
- 7) ☒ Claim(s) 10-14, 16-37 and 40-44 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION*****Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the plurality of receivers, down converter, filter coupled to receive signals from the down converter, analog-to-digital converter, equalizer and decoder as claimed in claim 1, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

*Response to Arguments*

2. Applicant's arguments with respect to claims 7-9, 15 have been considered but are moot in view of the new ground(s) of rejection.

*Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 7, 38, 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan (US Patent 6,259,745 B1) in view of Wang (US Patent 5,822,368).

(1) With regard to claim 7, Chan discloses in Fig. 1, a transmission system, comprising: a plurality of receivers, each of the plurality of receivers receiving signals from one of a plurality of transmission bands (col. 28, lines 30-34). Chan does not however disclose the make up of the receivers. However, Wang teaches a receiver in Fig. 5, wherein the receiver comprises a down converter (510, 512) that converts an input signal from the one of the plurality of transmission bands to a base band; a filter (590) coupled to receive signals from the down converter, the filter substantially filtering out signals not in the base band; an analog-to-digital converter (515) coupled to receive signals from the filter and generate digitized signals; an equalizer (570) coupled to receive the digitized signals; and a decoder (315,310) coupled to receive signals from the equalizer and generate recreated data, the recreated data being substantially the same data transmitted by a corresponding transmitter.

It would have been obvious to one skilled in the art at the time of invention to incorporate the teachings of Wang into the invention of Chan as a method of reducing error rate and to design an more reliable system (col. 1, line 26-39).

(2) With regard to claim 38, claim 38 inherits all limitations of claim 1 above as claim 38 merely discloses the method of transmission system disclosed in claim 1.

(3) With regard to claim 45, claim 45 inherits all limitations of claim 1 above.

5. Claims 8, 9, 15, 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan (US Patent 6,259,745 B1) in view of Wang (US Patent 5,822,368) as applied to claims 7 and 38 above, and further in view of Baker et al. (US Patent 6,163,563).

(1) With regard to claim 8, as noted above, Chan in combination with Wang disclose all limitations of claim 7. They do not however teach wherein the down-converter creates an in-phase signal and a quadrature signal, the in-phase signal being the input signal multiplied by a cosine function at the frequency of the one of the plurality of transmission bands and the quadrature signal being the input signal multiplied by a sine function at the frequency of the one of the plurality of transmission bands.

However, Baker et al. teaches in Fig. 1, wherein the down-converter (24) creates an in-phase signal and a quadrature signal, the in-phase signal being the input signal multiplied by a cosine function (34) at the frequency of the one of the plurality of transmission bands and the quadrature signal being the input signal multiplied by a sine function (36) at the frequency of the one of the plurality of transmission bands (col. 4, line 58-col. 5, line 11).

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to apply the method as taught by Baker et al. to modify the invention of Chan in combination with Wang for its known usefulness in communication systems employing integrated circuits (col. 16, lines 20-52).

(2) With regard to claim 9, Baker et al. also discloses in Fig. 1, wherein the filter includes an in-phase filter (42) filtering the in-phase signal and a quadrature filter (44) filtering the quadrature.

(3) With regard to claim 15, claim 15 inherits all limitations of claim 8 above. Furthermore Baker et al. discloses in Fig. 1, wherein the analog-to-digital converter includes a first analog-to-digital converter (46) coupled to receive signals from the in-phase filter and a second analog-to-digital converter (48) coupled to receive signals from the quadrature filter.

(4) With regard to claim 39, claim 39 inherits all limitations of claim 8 and 38 above.

#### *Allowable Subject Matter*

6. Claims 10-14, 16-37, 40-44 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### *Conclusion*

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a.) Higashiyama discloses in US Patent 4,679,225 Signal Transmission Apparatus

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For A Multiple Channel System And Method For Using The Same.

b.) Rowan et al. discloses in US Patent 6,529,303 B1 Optical Communications Networks Utilizing Frequency Division Multiplexing.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence B Williams whose telephone number is 571-272-3037. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lawrence B. Williams

lbw  
June 25, 2005



**KENNETH VANDERPUYE**  
**PRIMARY EXAMINER**